Specific Pressure in Cold Rolling (Cold Reducing) of Tubes

pass; this means that under these conditions the metal lags behind the rolls in the entire deformation region. At large m, $\beta > \theta_o$, and the deformation region (contact zone) comprises two zones a zone where the metal lags behind the rolls, and the zone of forward slip, the latter increasing with increasing m (Fig.3). Measurements of specific pressure, p, were carried out at m = 4-12 mm, i.e. under conditions of 2-zone deformation region. The results for alloy D-1, rolled to elongation $\mu_o = 5.4$, are reproduced in Fig.4 where p (kg/mm^2) is plotted against the distance, x (mm) from the wide end of the pass, the three curves relating to data obtained at m = 6, 8 and 11 mm. It will be seen that p varies along the pass, passing through a maximum at a point approximately 180 mm distant from the wide end of the pass, the magnitude of the pressure peak increasing with increasing m. The ascending portions of the curves in Fig.4 correspond to the rolling stage during which the wall thickness is considerably reduced and the metal is rapidly work-hardened; the descending parts of the curves correspond to that stage of the process during which the reduction of the wall thickness attained rapidly

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Specific Pressure in Cold Rolling (Cold Reducing) of Tubes

decreases. The results of some other experiments are also reproduced graphically. In Fig.5, p (kg/mm^2) at various points of the pass during the forward movement of the rolls, is plotted against m (mm), the curves obtained for alloy D-1, rolled to μ_o = 4.34, relating to points at a distance of 53, 99, 140 and 177 mm from the wide end of the pass. Fig.6 shows how p at various points of the pass (distance from the wide end of the pass indicated by each curve) varied with the magnitude of the absolute deformation Δt. the graphs relating to the forward movement of the rolls in rolling alloy D-1 to μ_o = 4.13. The effect of the relative deformation, $(\Delta t/t_x) \times 100\%$, on p is illustrated in the same manner (and for the same rolling conditions) in Fig.7. In Fig.8, p is plotted against the final thickness, t_{tp} (mm) of the tube (the upper horizontal scale) and against the total elongation, μ_o, (the lower horizontal scale); the curves, determined for alloy D-1 (wall thickness of the stock = 3.1 mm) rolled at m = 7.8 mm, relate to points of the pass whose distance (mm) from the wide end of the pass is indicated by each curve.

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Specific Pressure in Cold Rolling (Cold Reducing) of Tubes

In the second part of the investigation, the average specific pressure p_{cp} was determined from the measured magnitude of roll pressure P_{Σ}, and calculated contact area F_K. The results obtained on various materials rolled on cold-reducing mills, KhPT-32 (KhPT-32), KhPT-1 1/2 (KhPT-1 1/2) and KhPT-2 1/2 (KhPT-2 1/2) are reproduced graphically in Figs. 9-11, all of which relate to the forward movement of the rolling process. Fig.9, relating to copper, rolled on mill KhPT-1 1/2 (m = 6.3 mm, μ_o = 4.95) shows how p_{cp} (kg/mm^2) varied with the distance, x (mm) from the wide end. In Fig.10, p_{cp} is plotted against m (mm); the curves, constructed for alloy D-1 rolled on mill KhPT-32 (μ_o = 4.13), relate to points of the pass whose distance from the wide end is shown by each curve. The same relationship for brass L-62 (L-62) rolled on mill KhPT-1 1/2 to μ_o = 4.95, is illustrated in Fig.11. To explain the fact that p_{cp} was found to be practically independent to m, the present authors postulated that the variation of m brings about redistribution of the additional pressure across the pass so that although the

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Specific Pressure in Cold Rolling (Cold Reducing) of Tubes

pressure at some points may increase, its average value remains the same. Fig.12 shows the hypothetical distribution of pressure across the pass; for the sake of clarity, the semi-circle representing the circumference of the groove is shown as a straight line πR_x long, where R_x is the radius of the groove: graphs a and ς relate to rolling at m = 4 and 12 mm respectively. Based on the results of the present investigation, an empirical formula for p_{cp} was derived in the form

$$p_{cp} = \sigma_B \left[1 + \frac{f\sqrt{D}}{7.9}\right]\left(\frac{t_3}{t_x}\right) \qquad (5)$$

where σ_B - U.T.S. (kg/mm^2) of the metal rolled, corresponding to the degree of work-hardening attained in a given point of the pass; f - coefficient of friction between the metal and rolls; D - roll diameter, mm; t_3 - wall thickness of the stock; t_x - wall thickness of the tube at the point of the pass for which p_{cp} is

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Specific Pressure in Cold Rolling (Cold Reducing) of Tubes

calculated. The above formula (which is applicable only when the reduction in the wall thickness of the tube is not less than 0.04 mm) gave results which were in good agreement with the experimental data. In the last chapter of the present paper the distribution of pressure along the momentary deformation region (contact zone) is analytically studied, and two formulae are derived for the pressure in the zones before and after the neutral point (referred to as the lagging and forward slip zones). The values of pressure, obtained with the aid of these formulae, agree with experimental data only for the narrow end of the pass. The results of the present investigation can be summarized as follows. (1) The diagram of the distribution of pressure along the deformation region constitutes an arched curve which is characteristic for a 2-zone deformation region, and which supports the postulated existence of a "critical" section in the plane of the crown of the pass. (2) The specific pressure reaches a maximum approximately in the middle of the pass. The peak pressure is 2-2.5 times higher than the U.T.S. of the metal rolled.

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Specific Pressure in Cold Rolling (Cold Reducing) of Tubes

(3) Near the leading (wide) end of the pass, the specific pressure is practically independent of the magnitude of feed, m. Near the exit (narrow) end of the pass, the specific pressure increases almost linearly with increasing m, the increase being more pronounced in sections corresponding to small wall thickness of the tube. (4) With increasing total elongation (or decreasing final wall thickness) the specific pressure increases hyperbolically. (5) The average specific pressure is practically independent of m. (6) The average specific pressure can be calculated (with accuracy sufficient for practical purposes) from a formula derived by the present authors.
There are 14 figures, 3 tables and 6 Soviet references.

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E193/E183

Specific Pressure in Cold Rolling (Cold Reducing) of Tubes

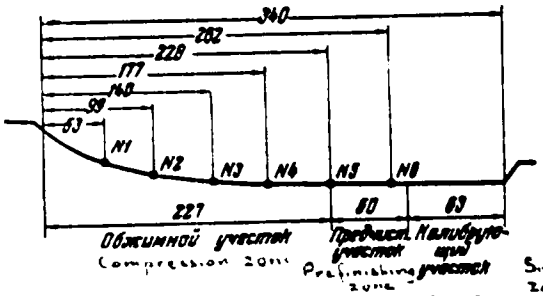

Рис. 1. Схема размещения угольных датчиков

Fig.3

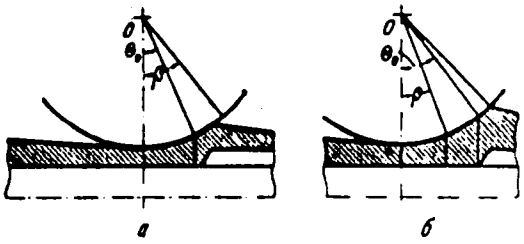

Рис. 3. Схема распределения металла
а — при $\beta > \theta_0$; б — при $\beta < \theta_0$.

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Specific Pressure in Cold Rolling (Cold Reducing) of Tubes

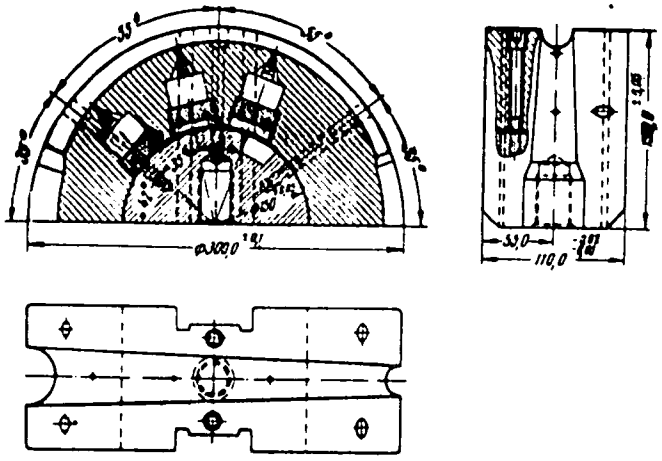

Рис. 2. Калибр для измерения удельного давления металла на валки

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Specific Pressure in Cold Rolling (Cold Reducing) of Tubes

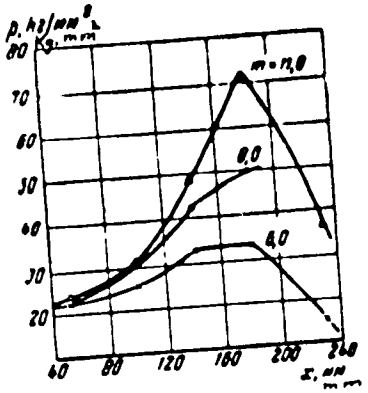

Рис 4. Распределение p по длине рабочего конуса

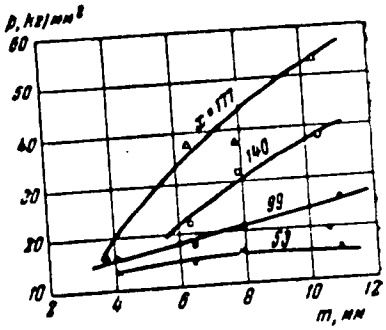

Рис. 5. Зависимость p от величины подачи

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E193/E183

Specific Pressure in Cold Rolling (Cold Reducing) of Tubes

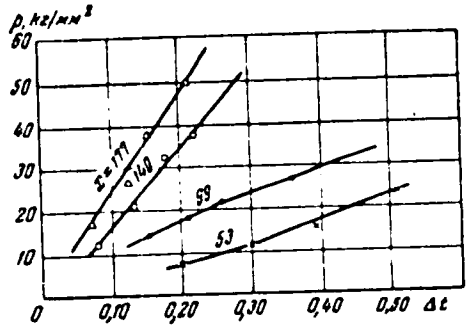

Рис. 6. Зависимость p от величины абсолютного обжатия

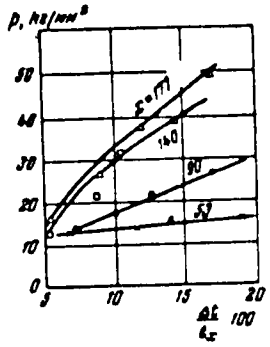

Рис. 7. Зависимость p

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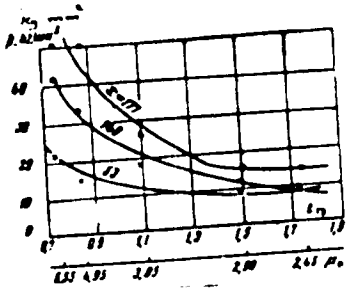

Fig.8

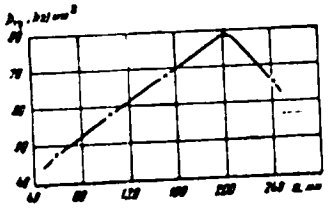

Fig. 9

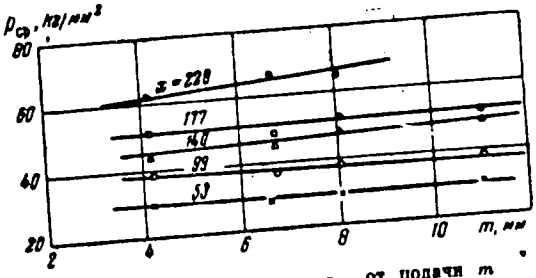

Рис. 10 Зависимость $p_{ср}$ от подачи m.

Fig. 10

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Specific Pressure in Cold S/509/60/000/004/009/024
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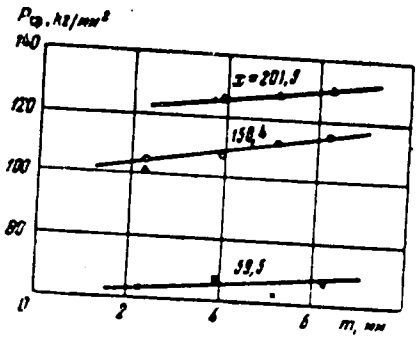

Fig.11

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Specific Pressure in Cold S/509/60/000/004/009/024
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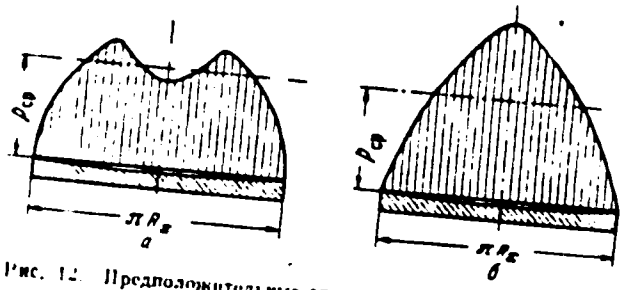

Рис. 12. Предположительные эпюры распределения удельных давлений p по ширине ручья
Подача m равна а — 6,0 мм, б — 12,0 мм

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[illegible] (c) [illegible]

[illegible] /0015

[illegible] Tymoveyev, [illegible]

[illegible] for Metals (Ukrainskiy [illegible] [illegible] metallov); Kommunarsk Metallurgical Plant (Kommunarskiy metallurgicheskiy zavod)

[illegible] two-layer steel plates

[illegible] Stal', [illegible]

[illegible] steel, plate, plate pack rolling, composite plate casting, [illegible] steel, [illegible] steel, St. 3 steel, K20 steel

[illegible] two-layer composite steel plates, [illegible] mm thick, composite plates, [illegible], are rolled from composite ingots. The Kuznetsk Metallurgical Combine produces [illegible] mm thick composite steel plates from composite ingots. Experience showed [illegible] to have substantial shortcomings, and the yield is low. The Ukrainian [illegible] Institute for Metals and the Zhdanov Metallurgical Plant [illegible] conducted an investigation in order to improve the quality and the yield of [illegible] products. The investigation showed that pack rolling is a more suitable method of producing heavy composite steel plates than casting of composite ingots. To produce composite plates with more uniform layer thicknesses by pack rolling, the

Card 1/2 UDC: 621.771.8

PAVLOV, I.M.; PIRYAZEV, inzh.

Pressure during the cold rolling of pipes. TSvet. met. 30 no.7:63-70 Jl '57. (MLRA 10:9)

1. Chlen-korrespondent AN SSSR. (Rolling (Metalwork))

PAVLOV, I.M.; DAVIDKOV, P.I.; PIRYAZEV, D.I.

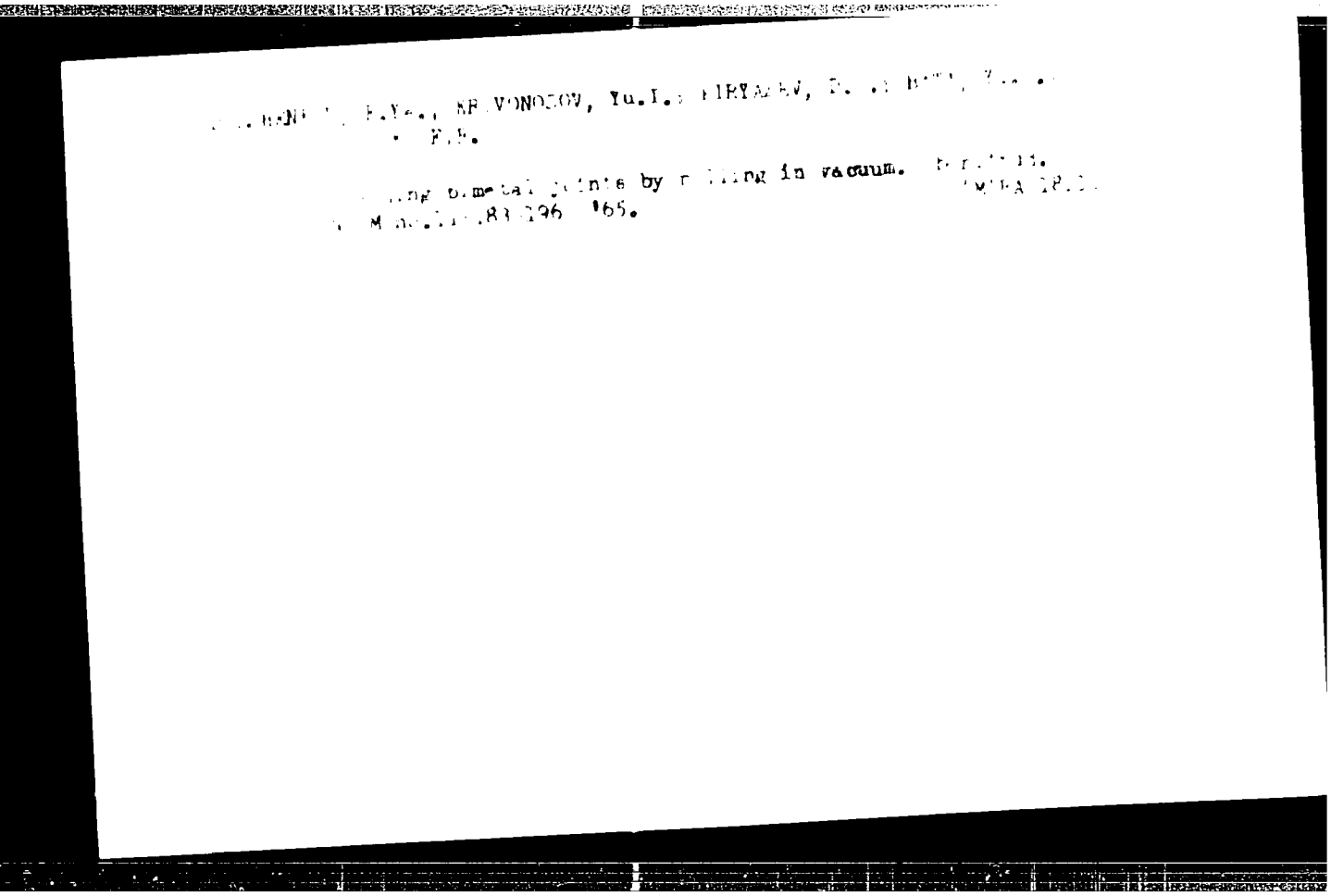
Using a roller torsiometer for determining the coefficient of friction during metal rolling. Zav.lab.23 no.2:236-238 '57. (MLRA 10:3)

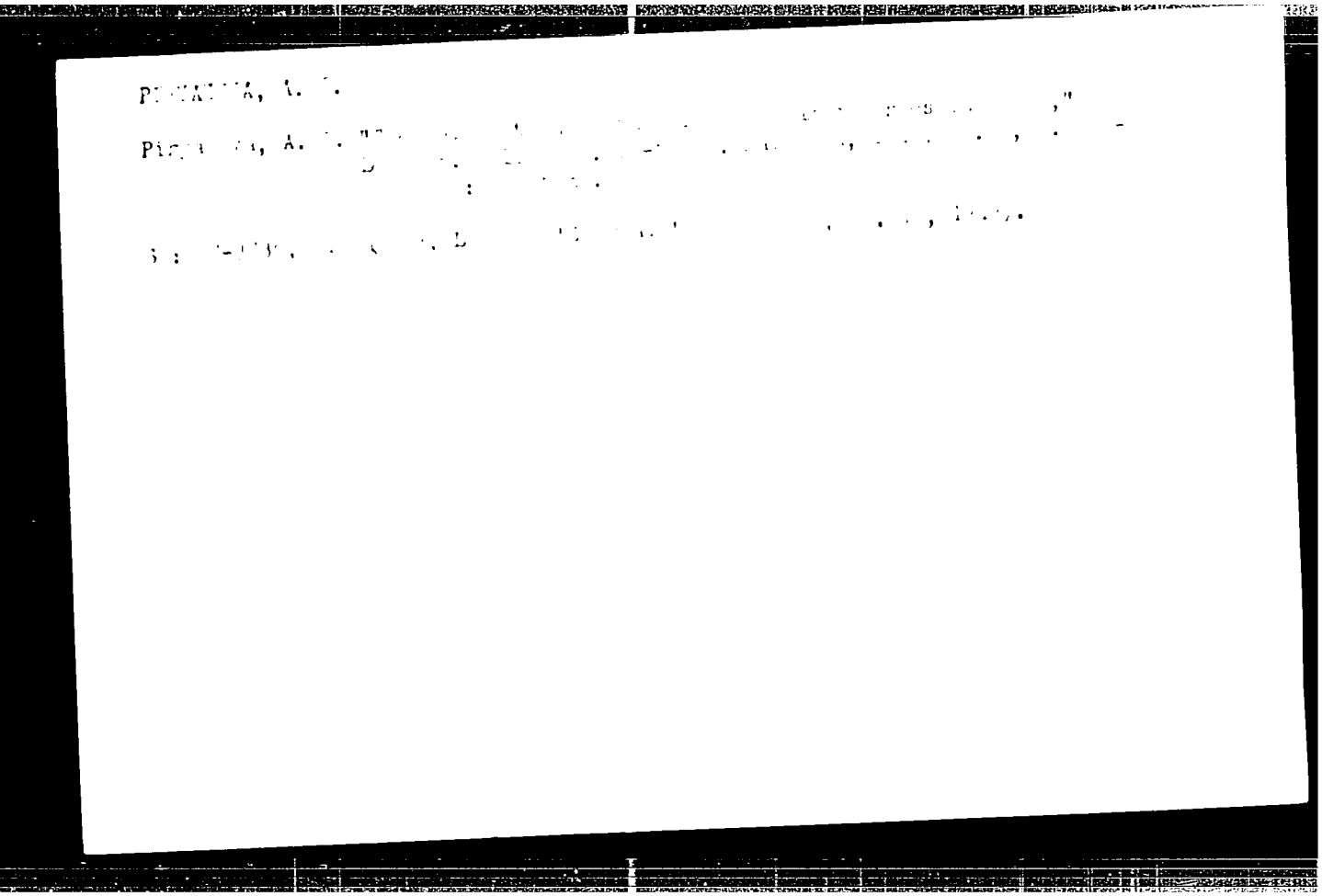
1. Moskovskiy institut stali.
(Physical instruments) (Rolling (Metalwork))

[illegible], P. I.

PIL'AZS, P. I.: "Investigation of forces in the cold rolling of [illegible]." Min Higher Education USSR. Moscow Order of Labor Red Banner Inst of Steel imeni I. V. Stalin. Moscow, 1956. (Dissertation for the Degree of Candidate in Technical Sciences)

Knizhnaya letopis', No. 31, 1956, Moscow.





PIRYAZEVA, A. I.

The following is among dissertations of the Leningrad Polytechnic Institute imeni Kalinin:

"Impulse Carrying Capacity of the Working Resistance of Vilite Arrestors." 10 April 1950. The working hypothesis of the mechanism of the conductivity of vilite disks is examined, the probable mechanism of their destruction is established, and a criterion of the carrying capacity of vilite disks is proposed.

SO: M-1048, 28 Mar 56

Pravit...

S A
Sect. B

621.316.933 : 621.316.8

702. **Surge characteristics of modern vilite diverters.** A. A. [illegible] and A. I. PRYAZINA. *Elektrichestvo*, No. 9, 3-10 (Sept., 1951) *In Russian.*

Improvements in vilite diverters resulted from comprehensive investigations of the form and character of atmospheric surges, the nature of the destructive process and by an adaptation of the method for producing carborundum resistors. The essential point was that current amplitudes of 100 kA, as, for instance, foreseen in the U.S.A. standards (for 5/10 μsec waves) were hardly required, but that "wavelengths" of up to 1 000 μsec occur quite frequently (mostly with amplitudes ~1 000 A). The maximum amplitudes do not exceed 30 kA. Many examples of diverter characteristics are shown with distribution curves and oscillograms of the gradual process of breakdown of resistance discs.

B. F. KRAUS

[illegible] Tech [illegible] Leningrad Polytech Inst [illegible]

S. A
Sect. B

Resistors

621.316.8 : 621.316.933

3215. The problem of the mechanism of the conductivity of the working resistances of surge-arresters of the valve-type. A. A. GUREV AND A. I. PERYAREVA. *Zh Tekh. Fiz.*, 21, 1469–85 (*No.* 12, 1951) *In Russian.*

It is pointed out that in the non-linear resistances of modern valve-type surge-arresters, which are an agglomerate of a large number of small carborundum grains, the c...persion factor of the grain size and of the contact points must have a great influence on the arrester characteristics. An attempt is made to evaluate the dispersion, it being found that the conductivity law of the agglomerate differs from that of the conductivity in the elementary contacts, and corresponds exactly with the relation given by the arrester characteristic. Claus [*Ann. Phys.* (*Lpz.*) 14, 644 (1932)] showed that there is a point of discontinuity in the characteristic of every individual contact point of the crystal, the characteristics themselves varying from one contact point to another. The author found that the non-linear characteristic of an agglomerate of ground-up carborundum crystals is mainly due to the voltage deviations at the bends of the individual grain characteristics.

B. F. KRAUS

POLOVOY, I.F. (Leningrad); PECHENKIN, I.D. (Leningrad); PIRYAZEVA, A.I. (Leningrad)

Evaluation of the reliability of lightning protection networks of rotating machines. Elektrichestvo no.7:30-36 Jl '62. (MIRA 15:7)

(Lightning protection) (Electric machinery)
(Electric power distribution)

SHCHERBACHEV, O.V.; KUCHINSKIY, G.S.; PIRYAZEVA, A.I.; RYABOV, B.M.; STEPANOV, K.S.

[Manual on high-voltage laboratory procedures] Rukovodstvo k laboratornym rabotam po tekhnike vysokikh napriazhenii. Leningrad. Pt.1. [High-voltage tests and measurements] Vysokovol'tnye izmereniia i ispytaniia. 1960. 59 p. (MIRA 14:1)

1. Leningrad. Politekhnicheskiy institut.
(Electric engineering--Laboratory manuals)
(Electric measurements)

SOV/112-59-5-8404

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 5, p 2 (USSR)

AUTHOR: Levinshteyn, M. L., Piryazeva, A. I., and Ryabov, B. M.

TITLE: Works by A. A. Gorev

PERIODICAL: Tr. Leningr. politekhn. in-ta, 1958, Nr 195, pp 13-22

ABSTRACT: Bibliographic entry.

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SOV/112-59-5-8850

8(6)

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 5, p 61 (USSR)

AUTHOR: Ivatsik, Ye. Ye., Piryazeva, A. I., and Popova, Ye. G.

TITLE: Overvoltages on Current-Transformer Primaries Due to Current Impulses

PERIODICAL: Tr. Leningr. politekhn. in-ta, 1958, Nr 195, pp 291-313

ABSTRACT: Experiments with actual current transformers revealed that lightning surges on their primaries, with no parallel protective arresters, can reach the value of $U_{max} = 2L_t I'_{max}$ where L_t is the inductance of the current-transformer primary measured at a frequency about 20 kc, I'_{max} is the maximum rate of rise of the current impulse. Experiments with a lightning protection analyzer at a substation helped to establish the following design values for I'_{max}: 1.5 kamp/microsec for 35-kv lines, 2.0 kamp/microsec for 110-220-kv lines. It was estimated that for 10-kv lines, the I'_{max} varies widely, 1.0-900 amp/microsec. Measurements proved that L_t is practically equal to the transformer-primary inductance as given by the manufacturer for

Card 1/2

Overvoltages on Current-Transformer Primaries Due to Current Impulses

the dynamic-stability current. Experiments showed that with multiturn current transformers, the impulse current flows largely through the parallel-connected protective arresters. Experimental outfits and their schemes are described in detail, and numerous oscillograms are presented. Results of testing the electric strength of current-transformer insulation are presented in the supplement.

I F.P

Card 2/2

RYAZEVA, A I
ф.3, 6, 10 //

PHASE I BOOK EXPLOITATION SOV/1130

Leningrad. Politekhnicheskiy institut

Tekhnika vysokikh napryazheniy (High-voltage Technique) Moscow, Gosenergoizdat, 1958. 664 p. (Series: Its Trudy, No. 195) 3,000 copies printed.

Eds.: Kostenko, M.V., Doctor of Technical Sciences, Professor; Pal', Ye.A.; Tech. Ed.: Voronetskaya, L.V.; Resp. Ed. of Series: Smirnov, V.S., Doctor of Technical Sciences, Professor.

PURPOSE: This book is addressed to electrical engineers, specifically to those interested in the field of high-voltage technique.

COVERAGE: This collection of articles sums up the principal results of investigations and studies made by Professor A.A. Gorev, Doctor of Technical Sciences, and his staff in the field of high-voltage phenomena and techniques at LPI (Leningrad Polytechnic Institute). It was at this institute

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SECTION VI. VARIOUS PROBLEMS

High-Voltage Technique (Cont.) SOV/1130

Sidel'nikov, V.V. Resistance and Internal Inductive Reactance of Straight-line Conductors 656

AVAILABLE: Library of Congress

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2-24-59

Card 12/12

SOV/133-59-6-22/41

AUTHORS: Gunin, I.V., Engineer; D.I.Piryazev, Candidate of Technical Sciences and Volchek, F.R., Engineer

TITLE: Residual Stresses in Beams and Channels (Ostatochnyye napryazheniya v balkakh i shvellerakh)

PERIODICAL: Stal', 1959, Nr 6, pp 544-546 (USSR)

ABSTRACT: Residual stresses in beams No 16 and channels No 18 of the usual and lightened type (GOST 8239-56 and GOST 8240-56) have been studied. The main dimensions of specimens - table 1; scheme of the distribution of strain gauges - Fig 1; the distribution of longitudinal residual stresses - Fig 2; the experimental results are assembled in table 2. It was found that: residual stresses in the wall of lightened beams are somewhat higher than in ordinary beams. The residual longitudinal stresses in beams and channels are practically equal. When beams and channels are submitted to bending the residual longitudinal stresses in flanges have the highest influence. The values of the latter in ordinary and lightened profiles differ only insignificantly. It is suggested that the causes of residual stresses should be investigated as well as

Card 1/2

Residual Stresses in Beams and Channels

the influence of these stresses on the service life of beams and channels. There are 3 figures and 2 tables.

ASSOCIATION: Ukrainskiy N.-I. institut metallov (Ukrainian Scientific Research Institute of Metals)

Card 2/2

PIRYAZEVA, V.A., inzh

A coordinating conference. Svetotekhnika 8 no.11:30 N '62.
(MIRA 15:10)

(Electric lighting—Congresses) (Electric light fixtures)

BOGDANOV, P.; DOBREV, D.; KOSSEV K.; PIRIONA R.

A method of measuring the blood pressure of man in a water environment. Dokl. Bolg. akad.nauk 17 no.1:93-95 '64

1. Submitted by Academician D. Dobrev.

BOGDANOV, P.; DOBREV, D.; KOSSEV, R.; [Kosev, R.]; PIRYOVA, B. [Piriova, B].

A method of measuring the blood pressure of man in a water environment. Doklady BAN 17 no.1 93-95 '64

1. Chair of Anatomy and Physiology at the "Georgi Dimitrov" Higher Institute of Physical Culture, Sofia. Submitted by Academician D. Chakhovats, D.] [deceased].

Chemical Abst.
Vol. 48 No; 8
Apr. 25, 1954
Analytical Chemistry

USSR.

State of silicic acid in solution and methods for its colorimetric determination. [redacted] M. Fiyanko and Yu. A. Shmidt (Inst. Silicate Chem., [redacted] U.S.S.R., Moscow). *Izvest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1953, 4, 607–14.—The polymerization of SiO_2 which takes place in acid solns. lowers the results of its colorimetric detn. with NH_4 molybdate. Equil. between the mol. disperse and polymer forms is established in relation to the acidity of the medium. The presence of Na, Ca, or Al chlorides speeds up the attainment of equil. but does not affect its relative position. Where SiO_2 exists in soln. in its polymer form, preliminary treatment to bring it into the mol.-disperse form is necessary before it can be detd. colorimetrically. This can be achieved by heating the soln. and adding NaOH; NaF can be added to the acidic soln. at room temp.

Mary Alexander

PIRYUTKO, M. M.

The solubility of silicic acid. Yu. V. Morachevskii and M. M. Piryutko. *Trest. Akad. Nauk S.S.S.R., Otdel. Khim. Nauk* 1956, 894–901.—The soly. was detd. for SiO_2 gels that were prepd. by different methods and with various degrees of dehydration. The detns. were made at 25.9 and 97°. The results showed that on soln. the acid is in the form of the simple mols. and ions that can react with molybdic acid. At 25° the equil. concn. (12.5×10^{-4} g./ml.) is attained slowly but it (41.5×10^{-4} g./ml. SiO_2) is established rapidly at 97°. Preliminary heating to 100, 200, 300, 800, and 900° has no effect in the soly., but the rate of soln. decreases as the roasting temp. is increased. The soly. of samples roasted at 1120° is sharply reduced.

J. Kovtar Leach

Inst. Chemistry of Silicates AS USSR

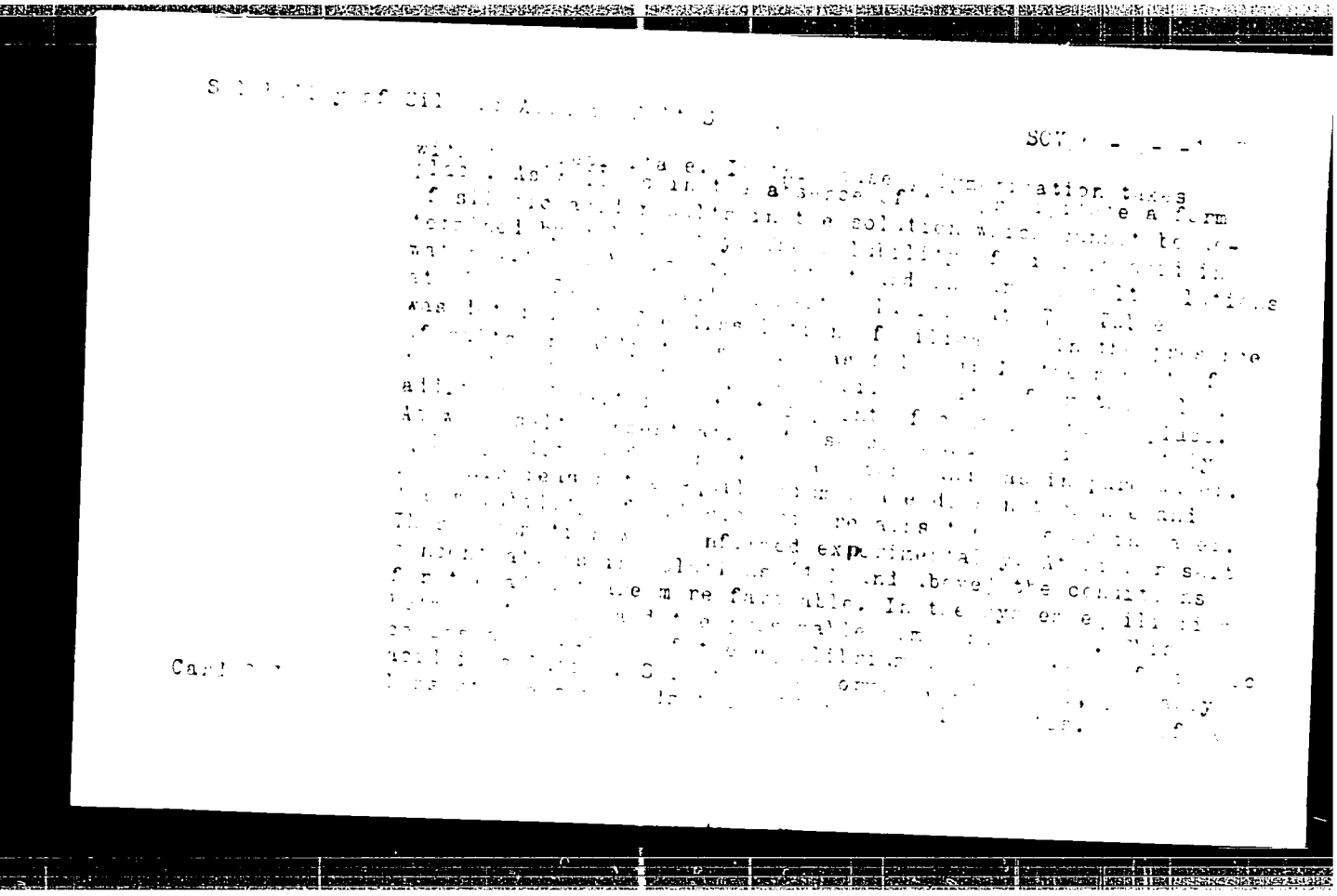
AUTHOR: [illegible]

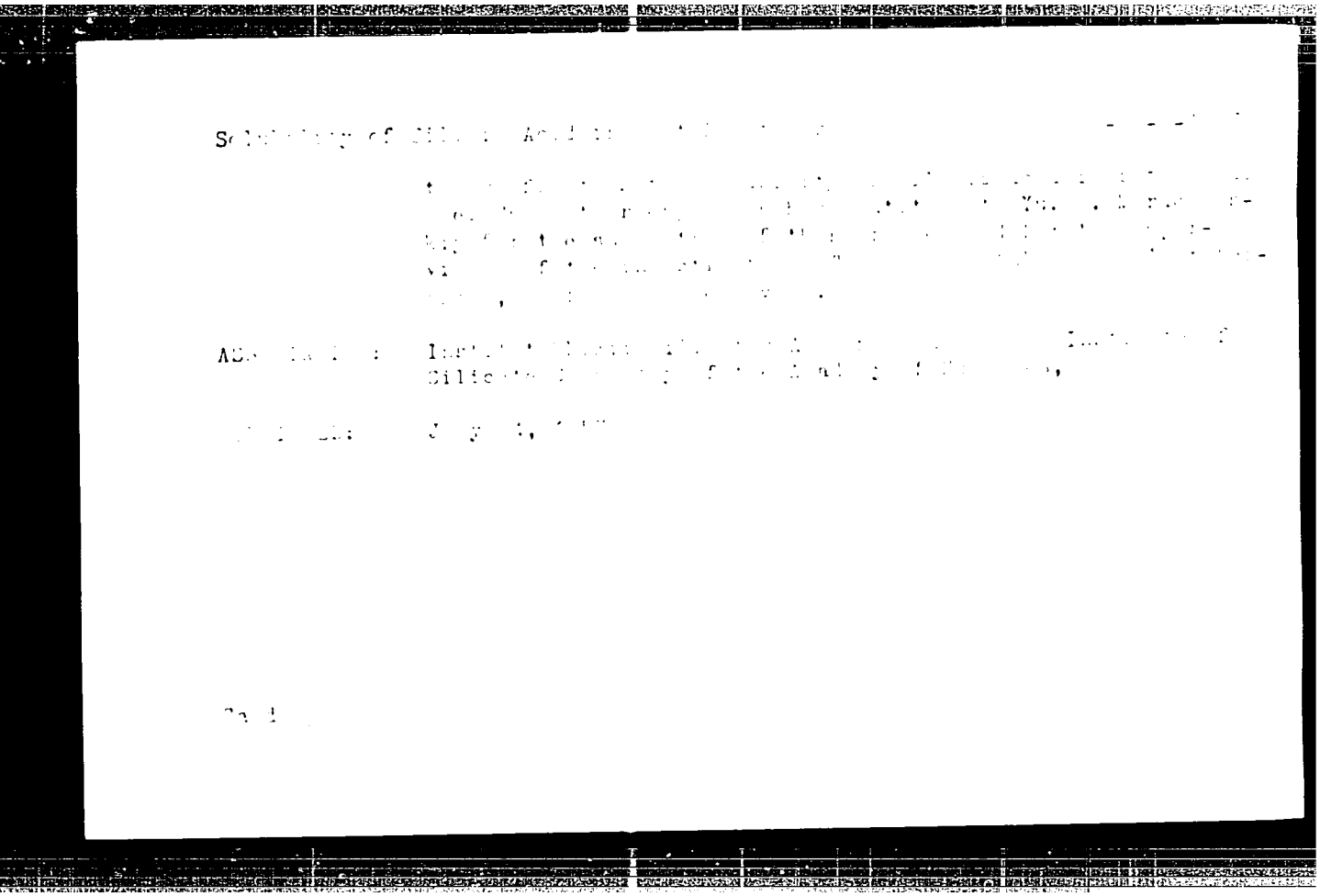
TITLE: [illegible]

PERIODICAL: Izvestiya A[illegible] Otdeleniye khimicheskikh nauk, 1959, Nr 3, pp [illegible]

ABSTRACT: In the pres[illegible] [illegible] solubility [illegible] acid in salt sol[illegible] [illegible]. The investiga-tion [illegible] [illegible] [illegible] of the simplest silicic acid molecules into the precipitate the [illegible] [illegible] readily [illegible] an im[illegible] [illegible] the simplest molecules react more readily [illegible] the pre-cipitate [illegible]. The presence of the dehydrated, crystalline [illegible] modification of silicon dioxide does not affect the behavior of silicic acid in solution, owing to the absence of hydroxyl [illegible] no condensation of the molecule [illegible] [illegible] [illegible] molecules

Card 1/3





ACCESSION NR: AP4038526 S/0020/64/156/003/0619/0621

AUTHOR: Toropov, N. A. (Corresponding member); Bondar', I. A.; Piryutko, M. M.

TITLE: A new garnet type crystalline modification of yttrium orthosilicate.

SOURCE: AN SSSR. Doklady*, v. 156, no. 3, 1964, 619-621

TOPIC TAGS: yttrium orthosilicate, crystallography, x ray diffraction, polymorphism, garnet type crystalline modification

ABSTRACT: In the study of the phase diagram of the binary system, yttrium oxide-silica, the authors were the first to obtain a polycrystalline yttrium orthosilicate. In further studies yttrium silicate single crystals were grown from potassium fluoride solution. The obtained crystals have the shape of symmetrical isometric polyhedrons with well developed polished faces. These crystals were examined goniometrically at the Department of Crystallography of the Leningrad State University im. Zhdanov. From the crystal habit one can observe two simple forms: rhombic dodecahedral and tetragonal trioctahedral. The chemical analysis of these single crystals indicated that they correspond to the formula $2Y_2O_3 \cdot 3SiO_2$. The optical analysis showed that crystals of this compound are isotropic, which

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ACCESSION NR: AP4038526

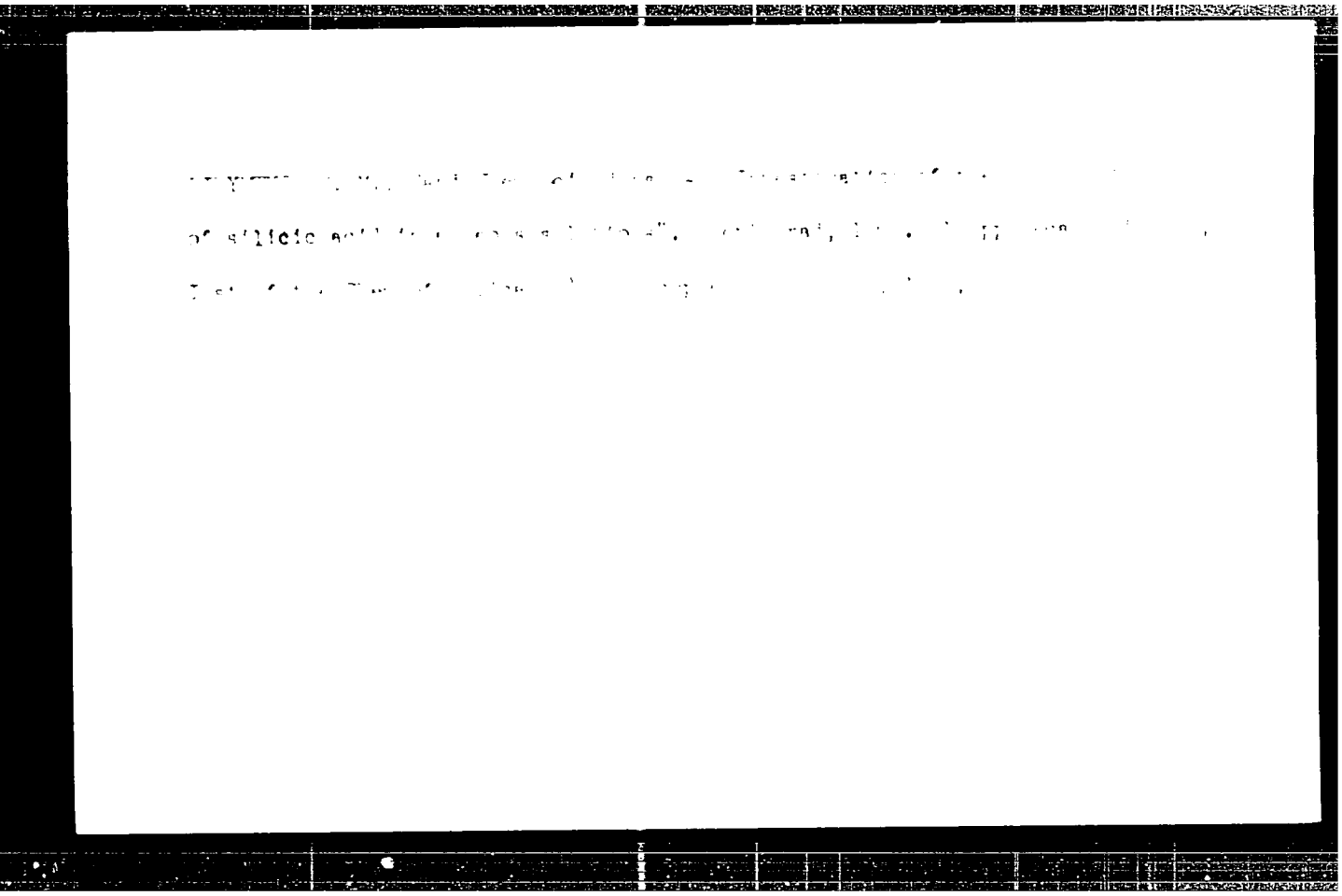
corresponds to their general garnet appearance. The index of refraction of single crystal material was higher than in the polycrystalline form of the same substance. Studies with high temperature microscope have shown that the new garnet-like form of $2Y_2O_3 \cdot 3SiO_2$ upon heating is transformed to anisotropic modification at 1550 C. It was not possible to obtain the reversible transformation which shows the monotropic character of this transformation. X-ray diffraction studies of single crystals substantiated the existence of the structural difference of this form of yttrium orthosilicate from the polycrystalline hexagonal modification. Orig. art. has: 2 figures.

ASSOCIATION: Institut khimii silikatov Akademii nauk SSSR (Institute of Chemistry of Silicates, Academy of Sciences SSSR)

SUBMITTED: 20Jan64 ENCL: 00

SUB CODE: 3S, IC NO REF SOV: 002 OTHER: 003

Card 2/2



ACC NR [illegible] SOURCE CODE: UR/0062/66/000/[illegible]

AUTHOR: [illegible], A. [illegible]

ORG: Institute [illegible] Academy of [illegible] SSSR (Institut khimii [illegible])

TITLE: Effect of gaseous [illegible] and comparison of [illegible]

SOURCE: AN SSSR. Izvestiya. [illegible]

TOPIC TAGS: cerium compound, [illegible] titanate, lanthanum [illegible] inorganic chemistry [illegible]

ABSTRACT: The object of the [illegible] the binary mixtures In_2O_3 - [illegible] the conditions of synthesis [illegible] termine the properties of these com[illegible] gen, carbon dioxide, hydrogen, and [illegible] diffraction analysis and thermogra[illegible] employed. New compounds of the composition [illegible] able composition with a perovskite [illegible] were synthesized. Both compounds decompose on heating [illegible] ium titanate of perovskite structure increases [illegible]

Card 1/2 UDC: 546.65 + 546.821

ACC NR: AP6017873

with calcium titanate. The solid solution can be synthesized in air. [illegible] the gaseous medium on reactions in the systems La - Ti - O, Nd - Ti - [illegible] and Y - Ti - O was clarified. In oxidizing and neutral gaseous media, [illegible] neodymium form pyrochlore-type compounds $La_2(Nd_2)Ti_2O_7$, and in reducing media skite-type compounds $(Ln_2O_3)_{1\pm x}\cdot 3TiO_{2-y}$. Samarium and yttrium form only pyrochlore-type compounds $Sm_2(Y_2)Ti_2O_7$, which are stable in both oxidizing and reducing media. Orig. art. has: 6 figures and 3 tables.

SUB CODE: 07/ SUBM DATE: 28Dec63/ ORIG REF: 002/ OTH REF: 002

Card 2/2

ZIL'BERSHTEYN, Kh.I.; PIRYUTKO, M.M.; NIKITINA, O.N.; FEDOROV, Yu.F.; NENAROKOV, A.V.

Rapid chemical concentration of silicon in the preparation of samples for spectral analysis. Zav. lab. 29 no.10:1266-1267 '63. (MIRA 16:12)

1. Institut khimii silikatov AN SSSR.

TOROPOV, N.A.; BONDAR', I.A.; PIRYUTKO, M.M.

New crystalline modification of yttrium orthosilicate having a garnet structure. Dokl. AN SSSR 156 no. 3:619-621 '64. (MIRA 17:5)

1. Institut khimii silikatov AN SSSR. 2. Chlen-korrespondent AN SSSR (for Toropov).

PIRYUTKO, M.M.

Chemical reactions taken place during the interaction of silicon with hydrofluoric and nitric acid. Zav. lab. 29 no.10:1179-1180 '63. (MIRA 16:12)

1. Institut khimii silikatov AN SSSR imeni I.V. Grebenshchikova.

MORACHEVSKIY, Yu.V. [deceased]; ZIL'BERSHTEYN, Kh.I.; PIRYUTKO, M.M.; NIKITINA, O.N.

Spectral determination of impurities in semiconductor silicon after a preliminary chemical concentration. Zhur.anal.khim. 17 no.5: 614-620 Ag '62. (MIRA 16:3)

1. Institute of Silicate Chemistry, Academy of Sciences, U.S.S.R., Leningrad.
(Silicon) (Semiconductors--Spectra)

MORACHEVSKIY, Yu.V. [deceased]; ZIL'BERSHTEYN, Kh.I.; PIRYUTKO, M.M.; NIKITINA, O.N.

Processes of chemical concentration used for the spectral determination of impurities in an extrapure silicon. Vest. LGU 17 no.22:140-145 '62. (MIRA 15:12)
(Silicon—Analysis) (Spectrochemistry)

S/054/62/000/004/013/017
B101/B186

AUTHORS: Morachevskiy, Yu. V. (deceased), Zil'bershteyn, Kh. I., Piryutko, M. M., Nikitina, O. N.

TITLE: The process of chemical concentration used for the spectroscopic analysis of impurities in high-purity silicon

PERIODICAL: Leningrad. Universitet. Vestnik. Seriya fiziki i khimii, no. 4, 1962, 140-145

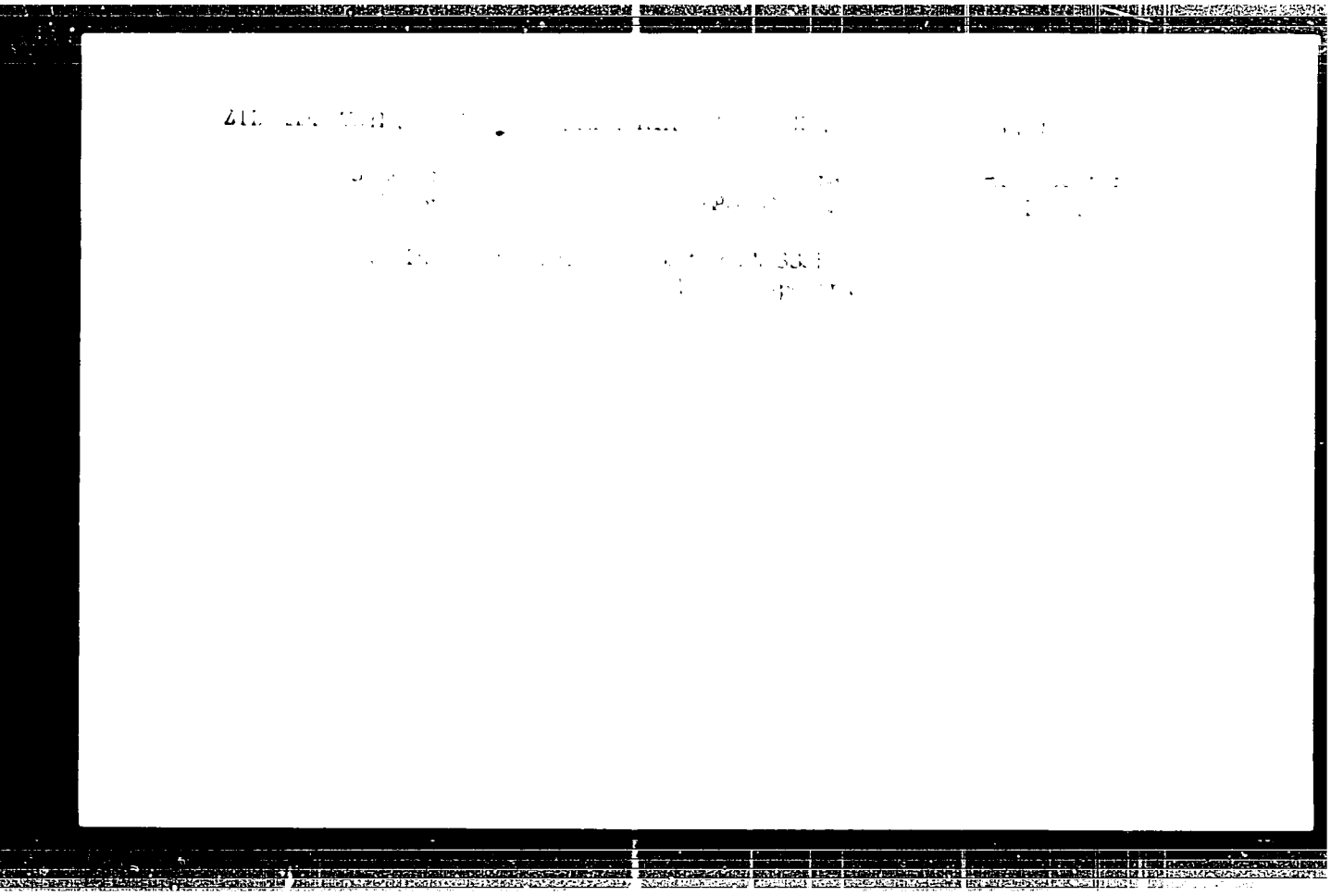
TEXT: The authors developed a method of analyzing high-purity silicon, based on a treatment of Si with HF and HNO_3 vapor and spectroscopic analysis of the concentrate (Zh.AKh, 17, no. 5, 614, 1962). In the present work it was checked whether (a) the silicon sample is contaminated by impurities contained in the acids; (b) the impurities contained in the silicon pass completely into the concentrate; (c) the quantitative spectroscopic analysis of the impurities is affected by what type of compound is present as impurities in the concentrate. Results: (1) HF and HNO_3 were contaminated by Tl^{204}, Zn^{65}, As^{76}, Ni^{63}, Sb^{124}, P^{32}, In^{114}, Ag^{110}, Ga^{72}, Fe^{59}, Ca^{40}, Cu^{64}, Sn^{122}, and evaporated at 105-110°C. The residue was dissolved in

Card 1/2

in HNO_3 and the activity of the solution measured. It was found that the impurities contained in HF and HNO_3 did not pass into the vapor and did not contaminate the silicon. (2) When Si is dissolved in liquid acids, all impurities contained in the acid pass into the concentrate and the determination becomes much less sensitive. (3) Using radioisotopes for chemical and spectrum analyses it was found that the impurities contained in Si passed completely into the concentrate (except for the volatilizing As, Sb, and P) if Si was dissolved by acid vapor, regardless of the form taken by the impurities in Si (as metal, silicide, etc.). (4) After dissolution of Si most of the impurities form fluorides, but some of them (Cu, Ni) form nitrates or mixtures of nitrates and fluorides. (5) A precise quantitative spectroscopic analysis of the end concentrate of impurities is possible with the aid of aqueous standard solutions of nitrates of the elements to be determined. There are 2 tables.

SUBMITTED: June 16, 1961

Card 2/2



S/032/62/028/006/011/025
B101/B138

AUTHORS: Zil'bershteyn, Kh. I., Piryutko, M. M., Nikitina, O. N., and Fedorov, Yu. F.

TITLE: Techniques of the spectrochemical analysis of semiconductor silicon

PERIODICAL: Zavodskaya laboratoriya, v. 28, no. 6, 1962, 680 - 682

TEXT: The spectrochemical analysis of semiconductor silicon already described (Zavodskaya laboratoriya, v. 25, no. 12, 1474 (1959)) is supplemented by some data. (1) The prevention of contamination of the samples during pulverization was investigated. Comparison of silicon monocrystal plates, agate, piezoquartz and leucosapphire as pulverizers showed that contamination by Cu, Ca, Al, Mg, Fe and Ni is prevented only with silicon monocrystals. (2) Initial crushing of the sample occurred by crushing the crystal wrapped in a ftoroplast-4 (fluoroethylene) film between ftoroplast plates in a hydraulic press. (3) The solutions of the nitrates of the elements to be investigated, used as standards, were found to remain unchanged after storage for seven months in polyethylene bottles.

Card 1/2

PIRYUTKO, M. M., ZILBERSHTEYN, Kh. I., NIKITINA, O. N., and SOMOV, M. P.

"Spectroscopic analysis of highly pure silicon after preconcentration"

report to be submitted for the Intl. Symposium on Pure Substances in Science and Technology, East German Chemical Soc., Dresden, East Germany
30 November - 2 December 1961

PIRZKHALOW, N. I.

"Dissociation thermique des sulfures superieurs du nickel". Guerassimow, J. I., Pirzkhalow, N. I. et Stepine, W. W. (p. 1736)

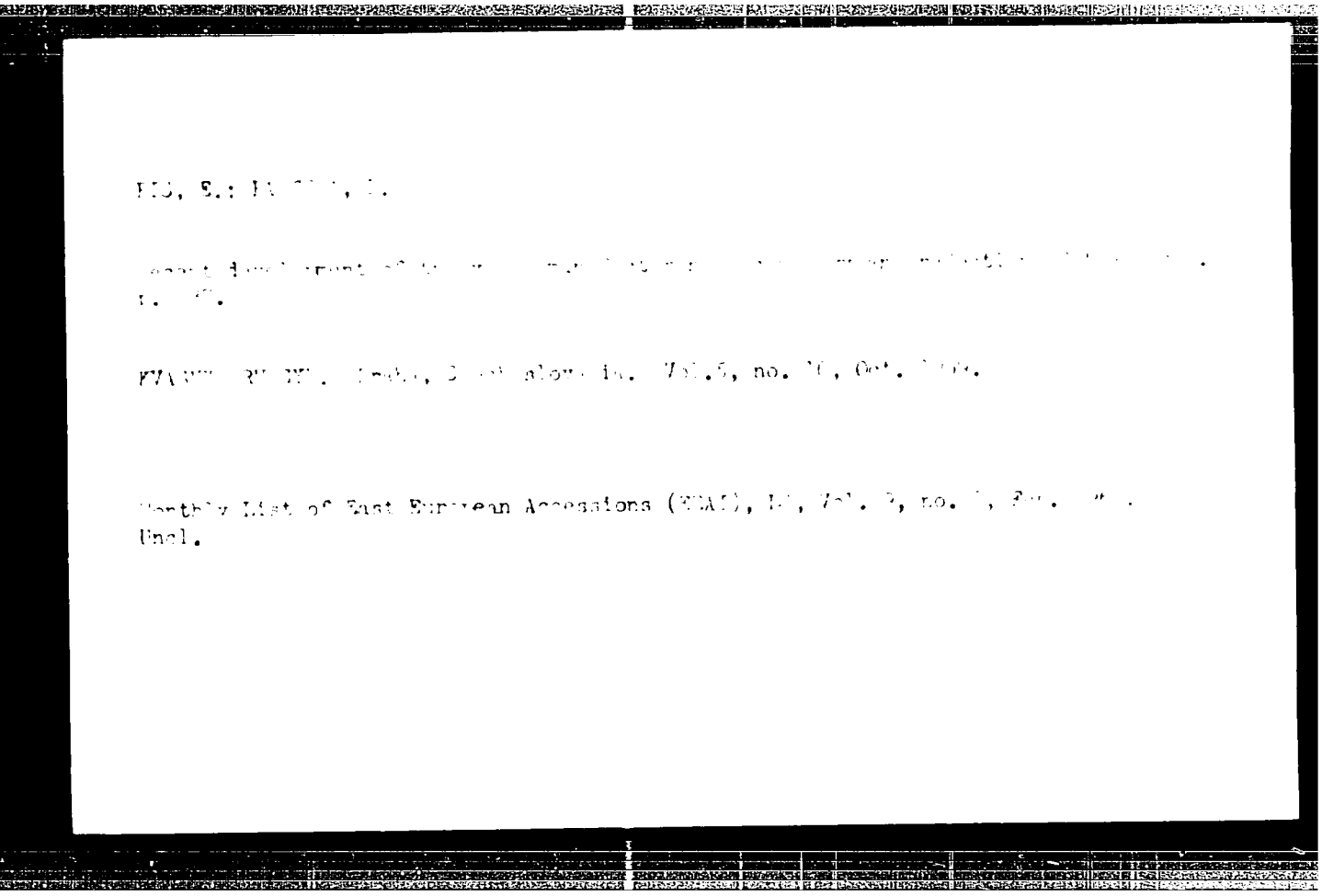
SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1936, Vol. 6, No. 11

PIS, D.

Geodetic works in the construction of panel buildings. p. 161.

GEODETICKY A KARTOGRAFICKY OBZOR. (Ustredni sprava geodesie a kartografie) Praha, Czechoslovakia. Vol. 5, no. 9, Sept. 1959.

Monthly list of East European Accessions (EEAI), LC, Vol. 8, no. 12, December 1959, Uncl.



PIS, E.

Dezider Tomecek; obituary. Kvasny prum 10 no. 8:181 Ag '64.

CZECHOSLOVAKIA/Chemical Technology - Chemical Products and Their [illegible] Application - Fermentation Industry.

Abs Jour : Ref Zhur - Khimiya, No [illegible], 19[illegible], [illegible]

Author : Fis, E.

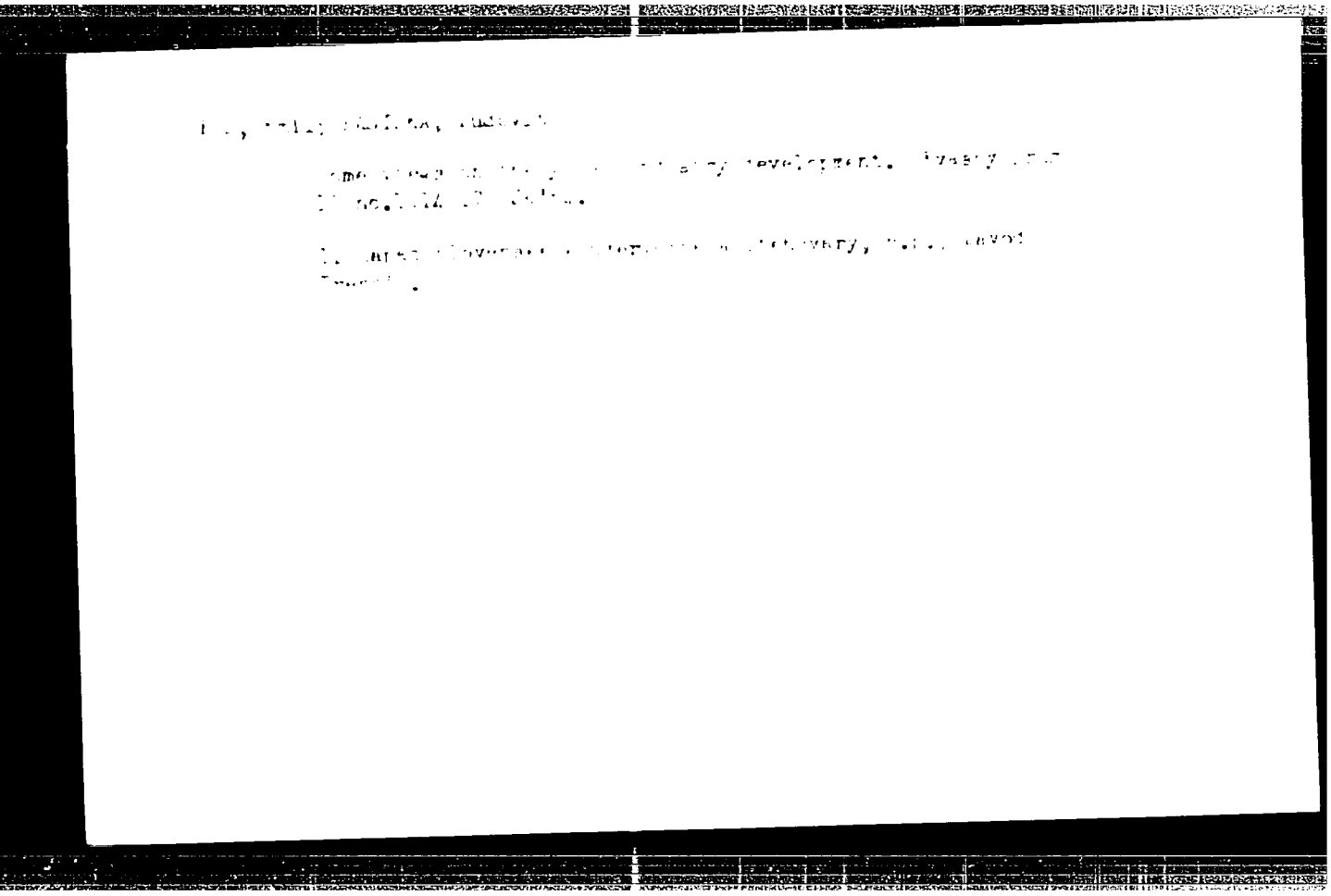
Inst : -

Title : Possibilities for Improving the Utilization of [illegible] Capacity and Mechanization of Fermentation [illegible].

Orig Pub : Kvasny Prumysl, 2, No [illegible], [illegible]-66, 19[illegible], [illegible] with summaries in German, French, English, and Russian.

Abstract : The improvement of [illegible] capacity of fermentation plants is [illegible] of the application of [illegible] industrial [illegible] at all stages of the operation.

Card 1/1



PIS, Emil, nositel Radu prace

Baker's yeast, a source of valuable substances for nutrition and medical treatment. Prum potravin 14 no.1:32-34 Ja '63.

1. Zapadoslovenske konzervarne a liehovary, n.p., Trencin.

CZECHOSLOVAKIA/Chemical Technology - Chemical Products and Their Application. Fermentation Industry. I-12

Abs Jour : Ref Zhur - Khimiya, No 1, 1958, 2899

Author : Pis, E.
Inst :
Title : Production of Pure Yeast Cultures at Fruit-Alcohol Distilleries and also on Fermentation of Fruit Wine.

Orig Pub : Kvasny prumysl, 1955, No 6, 126-128

Abstract : The following are considered: importance of pure yeast cultures; growing and acclimatization of yeast strains derived from sound fruit; the substrates used; mycology and techniques of growing pure cultures.

Card 1/1

FIS, E.

Possibilities for a better utilization of the production capacity and mechanization in agricultural distilleries.

P. 201 (Kvasny Prumysl) Vol. 3, No. 9, Sept. 1957, Czechoslovakia

SO: MONTHLY INDEX OF [illegible] (EEAI) LC. - Vol. 7, No. 1, JAN. 1958

P15, E.

Production of pure cultures of yeast in fruit distilleries and in the fermentation of fruit wines. The importance of pure cultures. E. Pis. *Kvasný Průmysl* 1, 126-8(1955).—The culture and acclimatization of yeast strains directly from sound fruit by selective methods, as well as substrates used are reviewed. The mycological and technological pure yeast culture is discussed and the scheme of reproduction explained. The importance of strong leavening is emphasized. J. Elayi

Pis, E.

Selective methods, and production of yeast starters and their use in alcohol distilleries. P. 25. KVASNY PRUMYSL. (Ministerstvo potravinarskeho prumyslu) Praha. Vol. 1, no. 4, Apr. 1955.

Source: EEAL LC Vol. 5, No. 10 Oct. 1956

PIS, E.

STUCHLIK, V.; PIS, E.; PASTEKA, L. "Molasses and its use in the production of yeast." p. 145
(Chemicke Zvesti. Vol. 5, No. 3/4, March/April, 1951. Bratislava.)

SO: Monthly List of East European Accessions, Vol. 3, no. 6, Library of Congress, June 1954, Uncl.

Czechoslovakia/Chemical Technology - Chemical Products and Their Application. Fermentation Industry, I-27

Abst Journal: Referat Zhur - Khimiya, No 19, 1956, 63538

Author: Pis, E., Pasteka, L.

Institution: None

Title: Selection Methods in the Production of Mother Yeast and Their Use at Agricultural Alcohol Plants

Original Periodical: Selekcne metody vyroba nasadneho drozdia a jeho uplatnenie v polno-hosphodarskych liehovaroch. Kvasny prumysl., 1955, 1, No 4, [illegible]; Slovak; Russian and German resumés

Abstract: Description of methods of selection in the production of mother yeast and the use of the latter for the inoculation of mash in alcono- production.

Card 1/1

CHRMO, Stefan; PIS, Emil; PREKOP, Stefan; KOLLATIOVA, K., inz.

Socialist pledge of the national enterprise Zapadoslevenske konzervarne a liehovary, Trencin. Kvasny prum 9 no.3:65-66 Mr '63.

1. Predseda Zavodni organizace Komunisticke strany slovenske (for Chrmo). 2. Riaditel zavodu (for Pis). 3. Predseda Zavodniho vyboru Revolucniho odboroveho hnuti (for Prekop). 4. Predsedkyne Zavodni organizace Ceskoslovenskeho svazu mladeze (for Kollatiova).

PIS, Emil, nositel Radu prace

Dried yeast proteins, a valuable addition to feeds. Kvasny prum 8 no.12:268-269 D '62.

1. Zapadoslovenske konzervarne a liehovary, n.p., zavod Trencin.

Czechoslovakia/Chemical Technology. Chemical Products and Their Application -- Fermentation industry, I-27

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 6467

Author: Pis, Emil

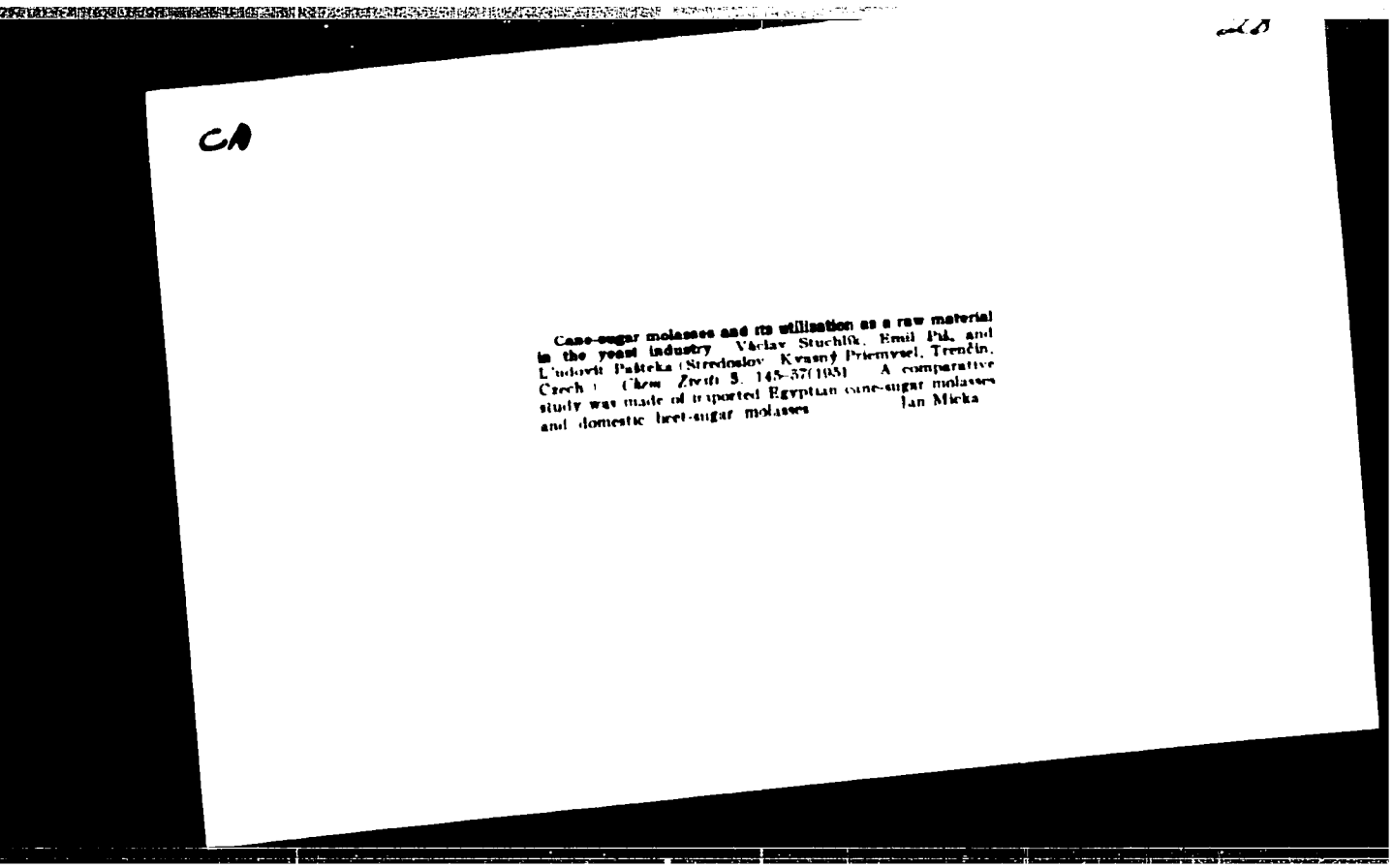
Institution: None

Title: Production of Baker's Yeast by Semi-Continuous and Continuous Fermentation Procedure

Original Publication: Kvasny prumysl, 1956, 2, No 6, Priloha, 1-12

Abstract: Description of a semi-continuous procedure for the production of yeast (Y) at the yeast plant in Trenchin, which consists in combining 6-4 vats into a single cycle by a common connecting pipe line, charging of 2nd generation yeast only into the first vat and transferring thereafter the fermenting mash from one vat into another as mother yeast. In the culture of yeast are utilized trace elements and substances of the "bios" type, which promote improvement of the biological conditions of the Y. Mother Y are prepared in an apparatus

Card 1/2



CA

Cane-sugar molasses and its utilization as a raw material in the yeast industry. Václav Stuchlík, Emil Pál, and Ludovít Palteka (Strediskov. Kvasný Priemysel, Trenčín, Czech.). *Chem. Zvesti* 5, 145-57(1951). A comparative study was made of imported Egyptian cane-sugar molasses and domestic beet-sugar molasses. Jan Micka

PIS, Emil, nositel Radu Prace

Utilization of bakery yeast. Kvasny prum 10 no.11:254-255 N '64.

1. Zapadoslovenske konzervarne a liehovary National Enterprise, Trencin.

PISA, [illegible]

Základy hygieny, první pomoci a porodnictví domácích zvířat. (1. vyd.) Praha, Státní pedagogické nakl., 1955. 228 p. (Učební texty vysokých škol)

SOURCE: EMAL IA Vol. 5, No. 10, Oct. 1956

Pisa, G.

88253

Z/017/60/049/005/001/001
E073/E535

9.2150 (also 1.38, 1.59)

AUTHORS: Vinopal Jaromir Engineer Doctor and Pisa Gustav Engineer

TITLE: Silicon Power Rectifiers

PERIODICAL: Elektrotechnický obzor 1960 Vol.49 No 5 pp 268-271

TEXT: Development work on silicon power rectifiers has been in progress at CKD Prague Stalingrad Plant since 1958 The first stage covered development of P-N junctions for ratings of 100 A and peak voltages of 600 V The aim was to obtain a P+-N-N+ junction as proposed by R N Hall and W C Dunlap (P-N Junctions Prepared by Impurity Diffusion Phys Rev (1950) No.80 p 467). The rectifier system is produced by alloying one side of the silicon plate with an alloy containing primarily silver and a low content of antimony as the donor, and the other side of the plate with an alloy containing primarily aluminium which acts as an acceptor. As a result P+ and N+ zones are formed on the two faces of the silicon plate with a central high resistance N zone formed by the silicon For manufacturing the P-N junctions single-crystal silicon of N-type conductivity with a specific resistance of 84 to 127 Ω cm (average value 106 Ω cm) was used with an average lifetime of the minority carriers of 134 μsec

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8825

Z/017/60/049/005/001/001
E073/E535

Silicon Power Rectifiers

Table 1 gives measured values of the voltage drop in the forward direction V for forward currents of 100 and 150 A respectively and of the inverse current μA for inverse voltages 100 to 800 V The voltage drop in the forward direction corresponds to the usual values for such cells The volt-ampere characteristic in the forward direction is plotted in Fig.3 The active surface of the cell can be loaded up to 100 A/cm^2. In a number of cases inverse currents less than 10 μA/cm^2 were obtained for voltages of 1500 V From the point of view of thermal stability it is advisable to have a low inverse current For the time being an inverse current of 1 mA/cm^2 of the junction at 600 V measured at normal temperature is considered to be the maximum permissible limit, the volt ampere characteristic in the inverse direction is plotted in Fig.4. Fig 5 shows the temperature dependence of the volt-ampere characteristic In accordance with measured results the developed rectifier cells can be loaded up to 140 to 150°C If the cooling air temperature is high, the load must be appropriately reduced The over-load capacity was tested using sinusoidal current pulses of 0 01 sec duration The starting temperature was 20°C the

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88253
Z/017/60/049/005/001/001
E073/E535

Silicon Power Rectifiers

tested cell withstood a surge of 2150 A but it was destroyed by a surge of 2400 A. By means of the applied technology 80% yield was obtained of satisfactorily etched junctions, of which 70% were diodes with inverse voltages of 600 V and 10% were diodes with inverse voltages between 300 and 600 V. Work is in progress for developing industrial series of silicon rectifiers for the following applications: mine traction (275 V, 500 A); a.c. locomotives (750 V, 4000 A); electrolysis plants for chlorine and aluminium manufacture (450 V, 25 000 A); urban traction (660 V, 1000 A). In conclusion it is stated that the large area P-N silicon junctions are produced in Czechoslovakia without using gold for the transition. Development work has progressed to a sufficient extent to permit starting manufacture on a semi-industrial scale of silicon power rectifiers. Industrial manufacture of these will be accelerated and the prices will be fixed to be comparable with foreign rectifiers of the same type. There are 5 figures, 1 table and 6 references: 3 Czech and 3 non-Czech.

ASSOCIATION: ČKD Praha - závod Stalingrad (ČKD Prague - Stalingrad Plant)

SUBMITTED: November 29, 1959

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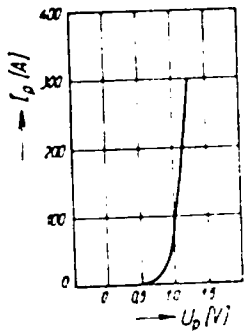
Z/017/60/049/005/001/001
E073/E535

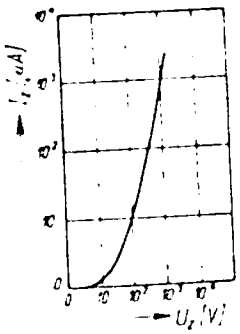
Silicon Power Rectifiers

Fig.3

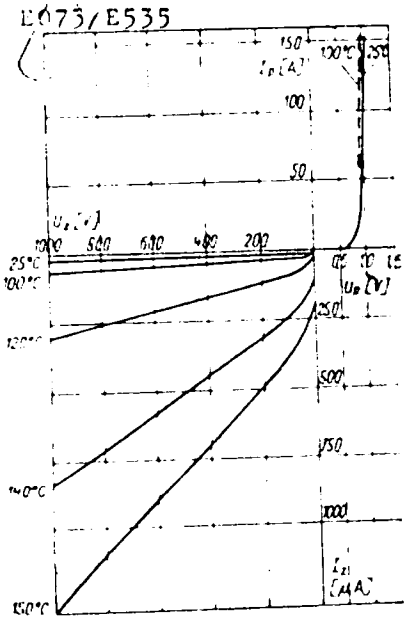


Obr. 3. Voltampérová charakteristiky v propustném směru.

Fig.4



Obr. 4 Voltampérová charakteristiky v závěrném směru



Obr. 5 Voltampérová charakteristiky v závislosti na teplotě.

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Silicon Power Rectifiers Z/017/60/049/005/001/001
E073/E535

Legend

1) Number, 2) Forward current, A, 3) Reverse voltage, V,
4) Voltage drop in the forward direction, 5) Inverse current, uA.

Table 1

Číslo	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Proud v propustném směru [A]	Úbytek napětí v propustném směru (V)																			
100	1,04	1,09	1,09	1,03	1,06	1,03	1,08	1,08	0,97	1,12	1,12	1,04	1,10	1,08	1,11	1,13	1,03	1,03	1,11	1,11
150	1,11	1,17	1,20	1,11	1,16	1,12	1,15	1,16	1,04	1,22	1,24	1,12	1,19	1,16	1,15	1,25	1,11	1,10	1,20	1,20
Závěrné napětí [V]	Zpětný proud (μA)																			
100	1	1	1	1	10	1	50	1	1	70	1	1	1	5	20	6	1	1		1
200	1	1	1	1	15	1	60	2	3	115	1	1	5	6	40	15	1	1		1
300	1	1	1	1	15	1	70	3	4	150	2	1	35	6	70	18	2	1	1	1
400	1	1	1	1	15	1	80	5	5	180	4	1	65	8	100	20	3	1	2	1
500	2	1	1	1	18	1	90	8	6	215	7	2	90	9	180	25	3	1	25	2
600	2	1	1	3	19	1	90	14	7	240	10	5	100	10	270	25	4	1	35	3
700	3	1	2	10	20	1	100	18	8	280	12	20	260	12	450	28	5	1	40	4
800	3	2	3	35	21	1	105	23	10	310	15	80	400	15	600	32	8	3	55	5

S/194/62/000/010/041/084
A061/A126

AUTHORS: Vinopal, Jaromír, Píša, Gustav

TITLE: A method of obtaining the structure of the type p^+-n-n^+ or n^+-p-p^+ for silicon power rectifiers

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 10, 1962, 26, abstract 10-4-51ch P (Czech pat., cl. 21g, 11/02, no. 1043[illegible], April 15, 1961)

TEXT: It is noted that junctions are formed by alloying, the alloys used for their fabrication being applied in the form of foils 0.05 - 0.2 mm thick. A foil containing silver, antimony, tin, and germanium is applied to one side, and another containing aluminum, indium, and zinc is applied to the other side of the silicon plate. The two electrodes of the forthcoming rectifier, which are made of tungsten, molybdenum, or tantalum, are also coated with a foil containing, e. g., silver and germanium. The entire multilayer system is annealed at 820 - 920°C in inert or reducing atmosphere, and is subsequently cooled in the course of 5 - 10 min. The rectifiers thus obtained have a reverse current < 0.5 ma at 1,000 v.
[Abstracter's note: Complete translation] N.S.

Card 1/1

VINOPAL, J., ins., dr.; PISA, G., inz.

Silicon electric power rectifiers. Energetika Cz 11 no.3:143-144 Mr '61.

VINOPAL, Jaromir, inz., dr.; PISA, Gustav, inz.

Metallurgy of semiconductor pn junctions. Hut listy 17 no.10:712-720 O '62.

1. Ceskomoravska-Kolben-Danek Praha.

84125

9.4300 (1035, 1138, 1143)

Z/017/60/049/011/008/013
E073/E535

AUTHORS: Píša, Gustav Engineer Spiess, Petr Engineer
Šebek, Svatopluk Engineer Vendlerová Věra Engineer
and Vinopal, Jaromír Engineer Doctor

TITLE: New Knowledge Gained in the Development of the Technology of Germanium and Silicon Rectifier Elements

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TEXT: In addition to reviewing world trends in semiconductor development, the authors deal briefly with results of development work in the Semiconductor Laboratories of ČKD Prague. The problem of dislocations in germanium has been dealt with extensively in Czech as well as in foreign literature (Refs. 3 4 5). Therefore, the authors deal only briefly with the results of extensive experiments, the aim of which was to determine the influence of the absolute number of dislocations on the quality of the P-N junctions and the influence of accumulation of dislocations and of microscopically visible disturbances caused by accumulation of dislocations within a small volume. A more detailed treatment of these is given in a paper by Burger and

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Šebek which is in the process of publication In the experiments three germanium single crystals have been used which have a satisfactory specific resistance and a lifetime of the minority carriers. All these three crystals contained in some spots very pronounced grouping of dislocations in the form of lines and stripes. All the cut plates were etched in order to make the dislocations visible. The locations of the disturbances were marked in detail. In order to be able to make a good comparison test discs of 12 mm diameter were cut from these specimens These could be sub-divided into three groups
a) Plates from locations which did not contain accumulations of dislocations but only uniformly distributed dislocations
b) Plates from locations that contained slight accumulations of dislocations in the nature of stripes
c) Plates from locations that contained considerable line dislocations formed by a large quantity of dislocations. A total of about 150 such plates were investigated which originated

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from three germanium crystals. The characteristics of the three types of discs are reproduced in Fig.1 and it can be seen that the diode of the group (c) reaches only about 40% of the voltage of the diodes of group (a). All the results obtained for the three groups of diodes were used for plotting average value curves. These are similar to the curves in Fig 2. The characteristics of diodes from group (b) were below those of group (a) and on the average were nearer to those of group (c). The experiments have shown the quality of the P-N transitions is decisively influenced by the poorest transition spot i e by the spot that contains a high accumulation of dislocations and it is this spot which determines the properties of the P-N junction. In studying the inverse voltages of diodes, investigations were made on materials with various average numbers of dislocations between zero and several tens of thousands per cm^2. As a result, the dependence was determined of the inverse voltage of junction rectifiers on the number of

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dislocations, provided that the dislocations are uniformly distributed, without considerable accumulations of stripes or lines. It was found that within wide limits this dependence is not greatly affected by the absolute number of dislocations provided that these are uniformly distributed. Only in the case of high densities, i.e above $2 \times 10^4/cm^2$, will there be a considerable drop of the average voltage of the diodes. The P-N transitions of germanium were first etched electrolytically by means of a hydrofluoric acid and then were etched again with a mixture, the main component of which was hydrogen peroxide with additions of nitric, acetic and hydrofluoric acid. The effect of this new etching mixture was tested on a large number of diodes. The inverse voltage improved considerably on the average by 100 V, as also did the inverse current (Table 1 and Fig 2). However, the surface of the diode is much more sensitive to the atmosphere and it was necessary to develop a new method of protecting the junctions. For this purpose sili...n

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varnishes and silicon vaseline were used but these did not prove satisfactory. Subsequently polymer type synthetic materials were used for this purpose and the characteristics of a diode after etching with hydrofluoric acid, the above mentioned etching mixture and protection by embedding in a synthetic material are plotted in Fig.3. For the manufacture of silicon P-N junctions with inverse voltages exceeding 1000 V it is advisable to use silicon with a specific resistance of 100 to 300 Ohm cm and a minimum lifetime of the minority carriers of 200 to 300 μsec with a homogeneous crystal lattice and without internal stresses and undesirable disturbances. Several methods of etching of silicon plates in etching agents of various compositions were tested. The speed and the depth of etching increases with the concentration of the etching agent and with temperature. The decrease in the thickness as a function of the etching time in various etching agents is plotted in Fig.4. For 150 A rectifiers a junction area of 200 mm^2 was chosen in order to obtain longer service life, better heat removal and to avoid excessive over-loading when the

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junctions are fully loaded. ČKD manufactures rectifier systems with N-type silicon with junctions produced by the fusion method in vacuum. Type N silicon is the most easily available in Czechoslovakia and so far has proved satisfactory Manufacture of P N junctions by the diffusion method is also being studied since it is considered to be more suitable for P-N-P-N junctions. The best method of protecting P-N silicon junctions from the effects of the atmosphere is to encapsule them in vacuum-tight containers In tests so far good results have been obtained by protecting the junctions with a silicon vaseline prepared in the Research Institute for Organic Synthesis without any addition the vaseline must be absolutely pure without moisture and degassed in vacuum Silicon vaseline with additions of halogenized alkylsilanes has not proved satisfactory. The encapsuling of the rectifier systems is also briefly described There are 5 figures 1 table and 15 references: 3 Czech 1 Soviet 2 German and 9 English

ASSOCIATION: ČKD Praha n.p závod Stalingrad
(ČKD Prague, Stalingrad Plant)

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PISA, Josef

"se of verbal nouns in technical chemical language. Sbor VSCHT Pardubice no.1:5-27 '64.

Denomination of chemical industry workers. Ibid.:29-46

1. Chair of Languages of the Higher School of Chemical Technology, Pardubice. Submitted May 5, 1963, October 3, 1963.

PISA, Josef

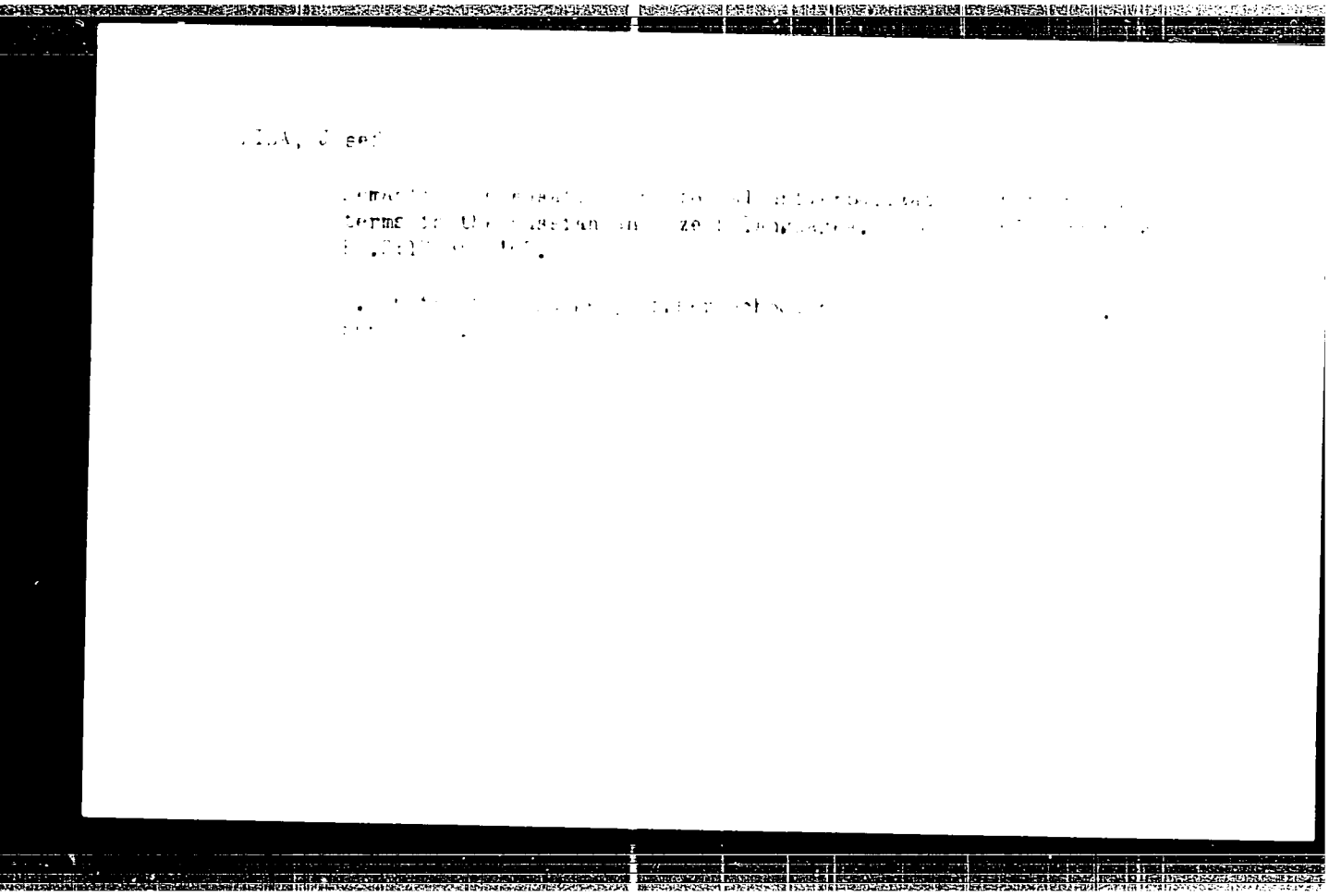
Specific names and their linguistic expression in the system of chemical and chemical technology nomenclature. Sbor VSChT Pardubice no.1:13-17 '63.

1. Chair of Languages, Higher School of Chemical Technology, Pardubice.

PISA, Josef

Examination of the systematic nature of terminology. Sbor VSChT Pardubice 1 2 5-20 '6? [publ. '63].

1. Katedra jazyku, Vysoka skola chemicko-technologicka, Pardubice.



CZECHOSLOVAKIA / ... mistry, ... chemistry, Hydro... mistry.

Abs Jour : Ref Zhur - Khim., ... 1958, No 49893

Author : Fis., Miroslav
Inst : Not given
Title : Preliminary ... Study ... Or Deposits of Vo..., Iron Mountains.

Orig Pub. : ... 1957, 32, No. ..., 36 -...

Abstract : ...stmag... ... in biotite-granodiorites were studied. The order of the ... of minerals ... first period of crystallization - biotite, quartz ..., pyrite I, sphalerite, pyrrhotine, pyrite I, ... -pyrite II, galena; second period - siderite, quartz II; third ... (hypergeneous minerals) - ..., ..., marcasite -pyrite II; malachite and native ... to hypergeneous minerals. -- ... Veretyev.

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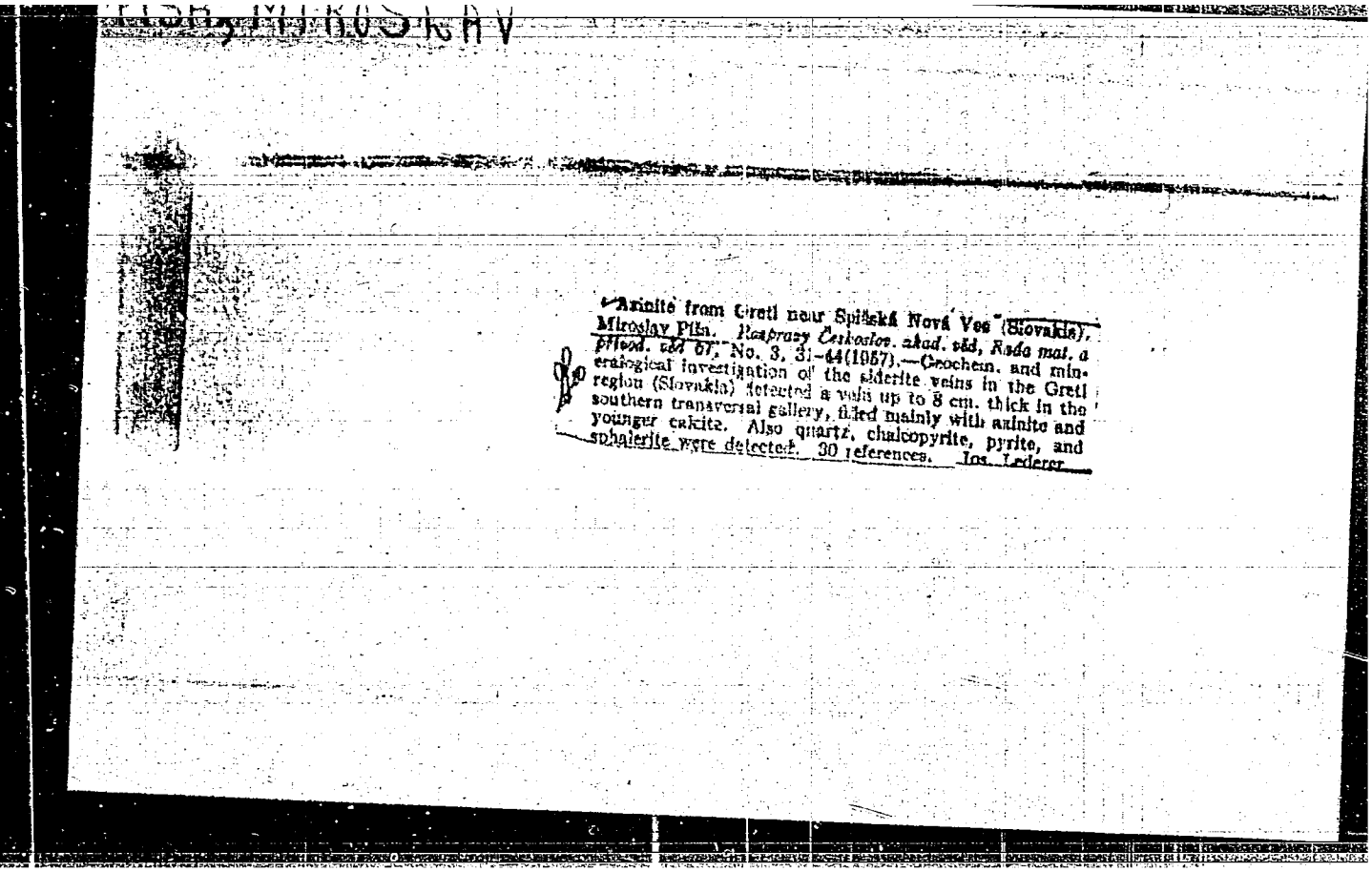
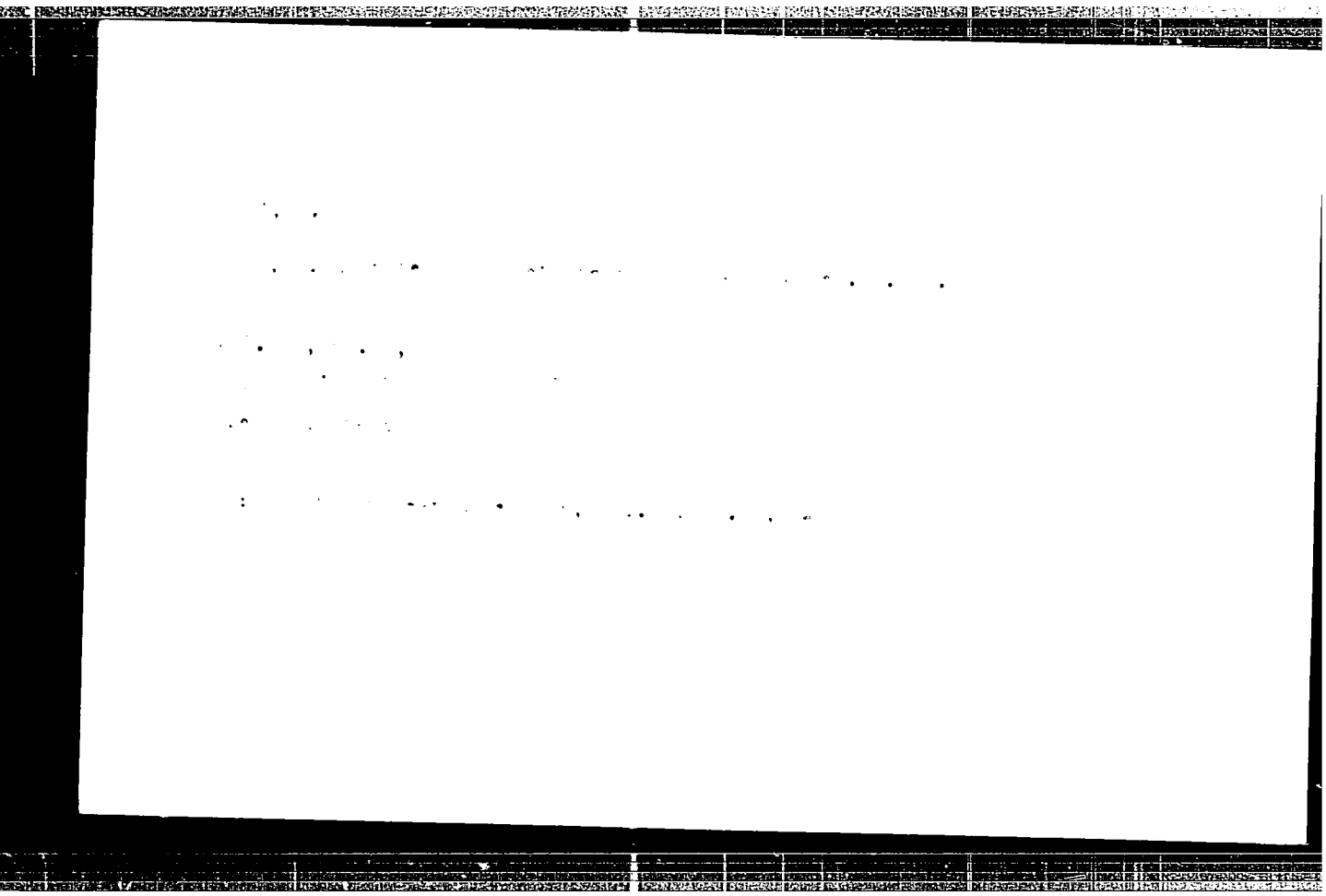


Aznite from Gretl near Spišská Nová Ves (Slovakia), Miroslav Pša. *Rozpravy Československ. akad. věd, Řada mat. a přírod. věd* 67, No. 3, 31–44(1957).—Geochem. and mineralogical investigation of the siderite veins in the Gretl region (Slovakia) detected a vein up to 8 cm. thick in the southern transversal gallery, filled mainly with aznite and younger calcite. Also quartz, chalcopyrite, pyrite, and sphalerite were detected. 30 references. Jos. Lederer



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-I.A, V.

"Ne- discoveries in the research or Agricultural Technology."

P. 38. (Vestnik. --Praha, Czechoslovakia.) Vol. 5, no. 1, 1 5[illegible].

SO: Monthly Index of East European Acces ion (EEAI) LC, Vo . 7, No. 5, May 1958